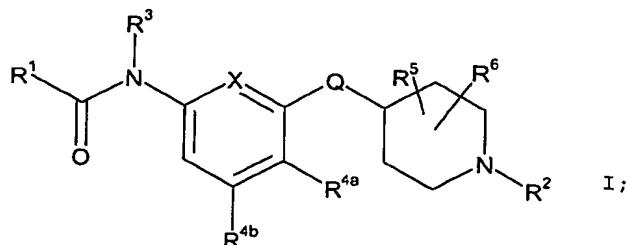


WE CLAIM:

1. A compound of formula I:



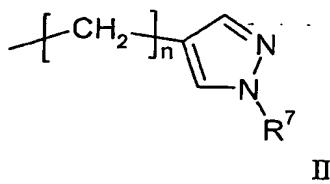
5 or a pharmaceutically acceptable acid addition salt thereof, where;

Q is oxygen or sulfur;

X is $-C(R^{4c})=$ or $-N=$;

10 R^1 is C_1 - C_6 alkyl, substituted C_1 - C_6 alkyl, C_3 - C_7 cycloalkyl, substituted C_3 - C_7 cycloalkyl, C_3 - C_7 cycloalkyl- C_1 - C_3 alkyl, substituted C_3 - C_7 cycloalkyl- C_1 - C_3 alkyl, phenyl, substituted phenyl, heterocycle, or substituted heterocycle;

R^2 is hydrogen, C_1 - C_3 alkyl optionally substituted with one to three fluoro substituents, C_3 - C_6 cycloalkyl- C_1 - C_3 alkyl, or a group of formula II



15 R^3 is hydrogen or C_1 - C_3 alkyl;

R^{4a} and R^{4b} are independently hydrogen, halo, or C_1 - C_4 alkyl optionally substituted with one to three fluoro substituents;

When X is $-C(R^{4c})=$, R^{4c} is hydrogen, halo, or C_1 - C_4 alkyl optionally substituted with one to three fluoro substituents;

20 R^5 is hydrogen or C_1 - C_3 alkyl optionally substituted with one to three fluoro substituents;

R^6 is hydrogen or C_1 - C_3 alkyl optionally substituted with one to three fluoro substituents, provided that R^6 may be C_1 - C_3 alkyl only when R^5 is other than hydrogen;

R^7 is hydrogen or C_1 - C_6 alkyl optionally substituted with one to three halo substituents; and

n is an integer from 1 to 6 inclusively.

2. The compound of Claim 1 wherein R³ is hydrogen or methyl, R^{4a}, R^{4b} and R^{4c} if present, are each independently hydrogen or halogen, R⁵ is hydrogen or methyl, and 5 R⁶ is hydrogen or methyl.

3. The compound of Claim 2 wherein R^{4a}, R^{4b}, R^{4c} if present, and R⁶ are each hydrogen.

10 4. The compound of any one of Claims 1 – 3 wherein R² is hydrogen or C₁ – C₃ alkyl optionally substituted with one to three fluoro substituents.

15 5. The compound of any one of Claims 1 – 4 wherein R¹ is phenyl, substituted phenyl, heterocycle, or substituted heterocycle.

6. The compound of any one of Claims 1 – 4 wherein R¹ is phenyl, substituted phenyl, heterocycle or substituted heterocycle, wherein heterocycle is selected from the group consisting of furanyl, thiophenyl, pyrrolyl, pyrrolidinyl, pyridinyl, N-methylpyrrolyl, oxazolyl, isoxazolyl, pyrazolyl, imidazolyl, triazolyl, oxadiazolyl, 20 thiadiazolyl, thiazolyl, thiazolidinyl, N-acetylthiazolidinyl, pyrimidinyl, pyrazinyl, pyridazinyl, isoquinolinyl, benzoxazolyl, benzodioxolyl, benzothiazolyl, quinolinyl, benzofuranyl, benzothiophenyl, and indolyl, and wherein substituted is taken to mean the ring moiety is substituted with one to three halo substituents; or substituted with one to two substituents independently selected from the group consisting of halo, C₁-C₄ alkyl, 25 C₁-C₄ alkoxy, and C₁-C₄ alkylthio, cyano, and nitro, wherein each alkyl, alkoxy and alkylthio substituent can be further substituted independently with C₁-C₂ alkoxy or with one to five halo groups each independently selected from fluoro and chloro; or substituted with one substituent selected from the group consisting of phenoxy, benzyloxy, phenylthio, benzylthio, and pyrimidinyloxy, wherein the phenoxy, benzyloxy, 30 phenylthio, benzylthio, or pyrimidinyloxy moiety can be further substituted with one to two substituents selected from the group consisting of halo, C₁-C₂ alkyl, and C₁-C₂ alkoxy; or substituted with one substituent selected from the group consisting of C₁-C₄

acyl and C₁-C₄ alkoxycarbonyl, and further substituted with zero to one substituent selected from the group consisting of halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, and C₁-C₄ alkylthio.

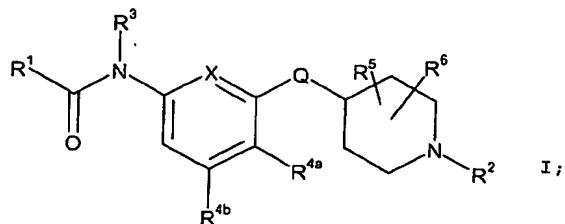
5 7. The compound of Claim 6 wherein R¹ is phenyl, substituted phenyl, heterocycle or substituted heterocycle, wherein the heterocycle moiety is selected from the group consisting of pyridinyl, indolyl, benzofuranyl, furanyl, thiophenyl, benzodioxolyl, and thiazolidinyl, and wherein substituted is taken to mean the ring moiety is substituted with one to three halo substituents; or substituted with one to two substituents
10 independently selected from the group consisting of halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, C₁-C₄ alkylthio, cyano, and nitro, wherein each alkyl, alkoxy and alkylthio substituent can be further substituted independently with C₁-C₂ alkoxy or with one to five halo groups each independently selected from fluoro and chloro; or substituted with one substituent selected from the group consisting of phenoxy, benzyloxy, phenylthio, benzylthio, and
15 pyrimidinyloxy, wherein the phenoxy, benzyloxy, phenylthio, benzylthio, or pyrimidinyloxy moiety can be further substituted with one to two substituents selected from the group consisting of halo, C₁-C₂ alkyl, and C₁-C₂ alkoxy; or substituted with one substituent selected from the group consisting of C₁-C₄ acyl and C₁-C₄ alkoxycarbonyl, and further substituted with zero to one substituent selected from the group consisting of
20 halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, and C₁-C₄ alkylthio.

8. The compound of any one of Claims 1 – 4 wherein R¹ is C₃-C₆ alkyl, substituted C₃-C₆ alkyl, C₃-C₇ cycloalkyl, substituted C₃-C₇ cycloalkyl, phenyl, substituted phenyl, heterocycle or substituted heterocycle; wherein the heterocycle moiety is pyridinyl or thiophenyl; and wherein substituted alkyl and substituted cycloalkyl are taken to mean alkyl or cycloalkyl substituted 1 to 5 times with halo, each independently selected, or substituted 1-3 times independently with halo and 1-2 times independently with hydroxy or C₁-C₃ alkoxy, or substituted 1-3 times independently with hydroxy or C₁-C₃ alkoxy; and taken to mean the ring moiety is substituted with one to three halo
25 substituents, each independently selected from the group consisting of fluoro, chloro, and bromo; or substituted with one to two substituents independently selected from the group consisting of halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, cyano and nitro, wherein each alkyl and
30 substituent is independently selected from the group consisting of fluoro, chloro, and bromo; or substituted with one to two substituents independently selected from the group consisting of halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, cyano and nitro, wherein each alkyl and

alkoxy substituent can be further substituted independently with one to five fluoro groups, and wherein substituted heterocycle is taken to mean the heterocyclic ring is substituted with halo or nitro.

5 9. A pharmaceutical composition comprising a compound of any one of Claims 1 - 8 and a pharmaceutical carrier, diluent, or excipient.

10 10. A method for activating 5-HT_{1F} receptors in a mammal comprising administering to a mammal in need of such activation an effective amount of a compound 10 of formula I:



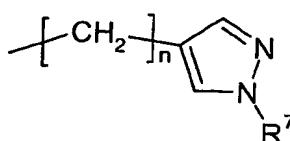
or a pharmaceutically acceptable acid addition salt thereof, where;

Q is oxygen or sulfur;

X is -C(R^{4c}) = or -N=;

15 R¹ is C₁-C₆ alkyl, substituted C₁-C₆ alkyl, C₃-C₇ cycloalkyl, substituted C₃-C₇ cycloalkyl, C₃-C₇ cycloalkyl-C₁-C₃ alkyl, substituted C₃-C₇ cycloalkyl-C₁-C₃ alkyl, phenyl, substituted phenyl, heterocycle, or substituted heterocycle;

R² is hydrogen, C₁-C₃ alkyl optionally substituted with one to three fluoro



substituents, C₃-C₆ cycloalkyl-C₁-C₃ alkyl, or a group of formula II

20 II

R³ is hydrogen or C₁-C₃ alkyl;

R^{4a} and R^{4b} are independently hydrogen, halo, or C₁-C₄ alkyl optionally substituted with one to three fluoro substituents;

When X is $-\text{C}(\text{R}^{4c})=$, R^{4c} is hydrogen, halo, or $\text{C}_1\text{-C}_4$ alkyl optionally substituted with one to three fluoro substituents;

R^5 is hydrogen or $\text{C}_1\text{-C}_3$ alkyl optionally substituted with one to three fluoro substituents;

5 R^6 is hydrogen or $\text{C}_1\text{-C}_3$ alkyl optionally substituted with one to three fluoro substituents, provided that R^6 may be $\text{C}_1\text{-C}_3$ alkyl only when R^5 is other than hydrogen;

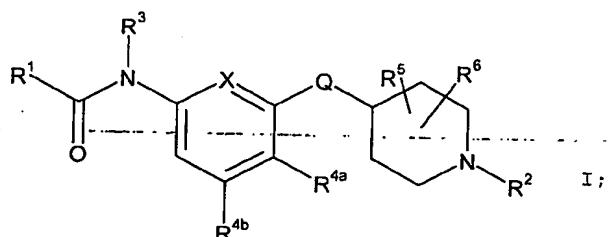
R^7 is hydrogen or $\text{C}_1\text{-C}_6$ alkyl optionally substituted with one to three halo substituents; and

n is an integer from 1 to 6 inclusively.

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11. The method according to Claim 10 wherein the mammal is a human.

12. A method for inhibiting neuronal protein extravasation in a mammal comprising administering to a mammal in need of such inhibition an effective amount of a 15 compound of formula I:



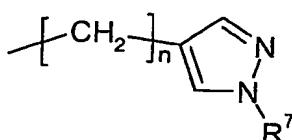
or a pharmaceutically acceptable acid addition salt thereof, where;

Q is oxygen or sulfur;

X is $-\text{C}(\text{R}^{4c})=$ or $-\text{N}=$;

20 R^1 is $\text{C}_1\text{-C}_6$ alkyl, substituted $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_3\text{-C}_7$ cycloalkyl, substituted $\text{C}_3\text{-C}_7$ cycloalkyl, $\text{C}_3\text{-C}_7$ cycloalkyl- $\text{C}_1\text{-C}_3$ alkyl, substituted $\text{C}_3\text{-C}_7$ cycloalkyl- $\text{C}_1\text{-C}_3$ alkyl, phenyl, substituted phenyl, heterocycle, or substituted heterocycle;

R^2 is hydrogen, $\text{C}_1\text{-C}_3$ alkyl optionally substituted with one to three fluoro



substituents, $\text{C}_3\text{-C}_6$ cycloalkyl- $\text{C}_1\text{-C}_3$ alkyl, or a group of formula II

II

R^3 is hydrogen or C_1 - C_3 alkyl;

R^{4a} and R^{4b} are independently hydrogen, halo, or C_1 - C_4 alkyl optionally substituted with one to three fluoro substituents;

5 When X is $-C(R^{4c})=$, R^{4c} is hydrogen, halo, or C_1 - C_4 alkyl optionally substituted with one to three fluoro substituents;

R^5 is hydrogen or C_1 - C_3 alkyl optionally substituted with one to three fluoro substituents;

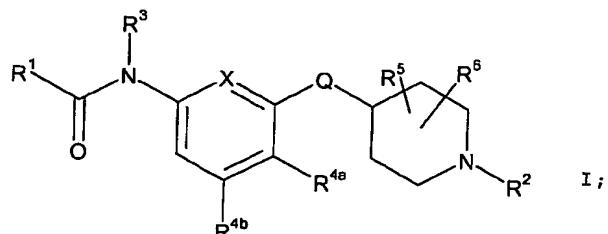
10 R^6 is hydrogen or C_1 - C_3 alkyl optionally substituted with one to three fluoro substituents, provided that R^6 may be C_1 - C_3 alkyl only when R^5 is other than hydrogen;

R^7 is hydrogen or C_1 - C_6 alkyl optionally substituted with one to three halo substituents; and

n is an integer from 1 to 6 inclusively.

15 13. The method according to Claim 12 wherein the mammal is a human.

14. A method for the treatment or prevention of migraine in a mammal comprising administering to a mammal in need of such treatment or prevention an effective amount of a compound of formula I:



20

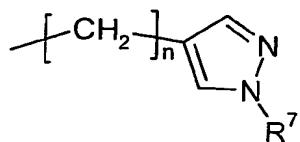
or a pharmaceutically acceptable acid addition salt thereof, where;

Q is oxygen or sulfur;

X is $-C(R^{4c})=$ or $-N=$;

25 R^1 is C_1 - C_6 alkyl, substituted C_1 - C_6 alkyl, C_3 - C_7 cycloalkyl, substituted C_3 - C_7 cycloalkyl, C_3 - C_7 cycloalkyl- C_1 - C_3 alkyl, substituted C_3 - C_7 cycloalkyl- C_1 - C_3 alkyl, phenyl, substituted phenyl, heterocycle, or substituted heterocycle;

R^2 is hydrogen, C₁-C₃ alkyl optionally substituted with one to three fluoro



substituents, C₃-C₆ cycloalkyl-C₁-C₃ alkyl, or a group of formula II

II

R^3 is hydrogen or C₁-C₃ alkyl;

5 R^{4a} and R^{4b} are independently hydrogen, halo, or C₁-C₄ alkyl optionally substituted with one to three fluoro substituents;

When X is $-C(R^{4c})=$, R^{4c} is hydrogen, halo, or C₁-C₄ alkyl optionally substituted with one to three fluoro substituents;

10 R^5 is hydrogen or C₁-C₃ alkyl optionally substituted with one to three fluoro substituents;

R^6 is hydrogen or C₁-C₃ alkyl optionally substituted with one to three fluoro substituents, provided that R^6 may be C₁-C₃ alkyl only when R^5 is other than hydrogen;

R^7 is hydrogen or C₁-C₆ alkyl optionally substituted with one to three halo substituents; and

15 n is an integer from 1 to 6 inclusively.

15. The method according to Claim 14 wherein the mammal is a human.

16. A compound according to any one of Claims 1-8 for use as a
20 pharmaceutical.

17. A compound according to any one of Claims 1-8 for use in activating 5-HT_{1F} receptors in a mammal.

25 18. A compound according to any one of Claims 1-8 for use in inhibiting neuronal protein extravasation in a mammal.

19. A compound according to any one of Claims 1-8 for use in the treatment or prevention of migraine in a mammal.

20. A compound according to any one of Claims 17-19 wherein the mammal is
5 a human.

21. The use of a compound according to any one of Claims 1-8 in the manufacture of a medicament for the activation of 5-HT_{1F} receptors in a mammal.

10 22. The use of a compound according to any one of Claims 1-8 in the manufacture of a medicament for the inhibition of neuronal protein extravasation in a mammal.

15 23. The use of a compound according to any one of Claims 1-8 in the manufacture of a medicament for the treatment or prevention of migraine in a mammal.

24. The use of a compound according to any one of Claims 1-8 in the manufacture of a medicament for the treatment of a disorder associated with dysfunction of the 5-HT_{1F} receptors in a mammal.

20 25. The use according to Claim 24 wherein the 5-HT_{1F} receptor associated disorder is neuronal protein extravasation.

25 26. The use according to Claim 24 wherein the 5-HT_{1F} receptor associated disorder is migraine.

27. The use according to any one of Claims 21-26 wherein the mammal is a human.

30 28. A pharmaceutical composition adapted for the treatment or prevention of migraine comprising a compound according to any one of Claims 1-8 in combination with one or more pharmaceutically acceptable excipients, carriers, or diluents therefore.